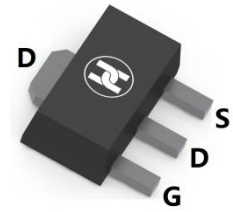
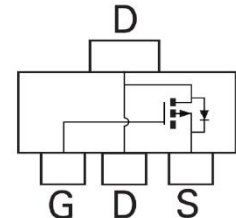


HIGH VOLTAGE MOSFET (P-CHANNEL)
FEATURES

- Low on-resistance: $V_{DS}=-250V, R_{DS(ON)} \leq 14\Omega @ V_{GS}=-10V, I_D=-205mA$
- Low threshold and Low gate drive
- High voltage and Fast switching speed
- Complementary N-channel Type ZVN4525Z
- Surface Mount device


SOT-89

MECHANICAL DATA

- Case: SOT-89
- Case Material: Molded Plastic. UL flammability
- Classification Rating: 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Weight: 0.055 grams (approximate)

MAXIMUM RATINGS ($T_A = 25^\circ C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	-250	V
Gate-source voltage	V_{GS}	± 40	V
Continuous drain current	I_D	$(V_{GS}=10V; T_A=25^\circ C)(a)$	-200
		$(V_{GS}=10V; T_A=70^\circ C)(a)$	-164
Pulsed drain current (c)	I_{DM}	-1.0	A
Continuous Source Current (Body Diode)	I_S	-0.75	A
Pulsed Source Current (Body Diode)	I_{SM}	-1	A
Power dissipation at $T_A=25^\circ C(a)$	P_D	1.2	W
Junction to Ambient (a)	$R_{\theta JA}$	103	$^\circ C/W$
Junction to Ambient (b)		50	$^\circ C/W$
Operating and Storage temperature	T_J, T_{STG}	-55 ~ +150	$^\circ C$

NOTES:(a) For a device surface mounted on 25mm x 25mm FR4 PCB with high coverage of single sided 1oz copper, in still air conditions

(b) For a device surface mounted on FR4 PCB measured at $t \leq 5$ secs.

(c) Repetitive rating - pulse width limited by maximum junction temperature. Refer to Transient Thermal Impedance graph.

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ C$ unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Drain-Source breakdown voltage	$V_{(BR)DSS}$	-250	-285		V	$V_{GS}=0V, I_D=-1mA$
Gate-threshold voltage	$V_{GS(th)}$	-0.8	-1.5	-2.0	V	$V_{DS}=V_{GS}, I_D=-1mA$
Gate-body leakage current	I_{GSS}		± 1	± 100	nA	$V_{DS}=0V, V_{GS}=\pm 40V$
Zero gate voltage drain current	I_{DSS}		-30	-500	nA	$V_{DS}=-250V, V_{GS}=0V$
Drain-source on-resistance (1)	$R_{DS(ON)}$		10	14	Ω	$V_{GS}=-10V, I_D=-200mA$
				13	18	Ω
Forward Trans-conductance (3)	g_{fs}	80	200		mS	$V_{DS}=-10V, I_D=-150mA$
Input capacitance(3)	C_{iss}		73		pF	$V_{DS}=-25V, V_{GS}=0V, f=1MHz$
Output capacitance(3)	C_{oss}		12.8		pF	
Reverse transfer capacitance(3)	C_{rss}		3.91		pF	
Turn-on delay time(2)(3)	$t_{d(on)}$		1.53		nS	$V_{DD}=-30V, I_D=-200mA, V_{GS}=-10V, R_G=50\Omega,$
Turn-on rise time(2)(3)	t_r		3.78		nS	
Turn-off delay time(2)(3)	$t_{d(off)}$		17.5		nS	
Turn-off fall time(2)(3)	t_f		7.85		nS	$V_{DS}=-25V, V_{GS}=0V, I_D=-200mA$
Total Gate Charge(2)(3)	Q_g		2.45	3.45	nC	
Gate-Source Charge(2)(3)	Q_{gs}		0.22	0.31	nC	
Gate Drain Charge(2)(3)	Q_{gd}		0.45	0.63	nC	
Diode Forward Voltage (1)	V_{SD}			0.97	V	$I_S=-200mA, V_{GS}=0V$
Reverse Recovery Time (3)	t_{rr}		205	290	nS	$I_f=-200mA, di/dt=100A/\mu S$
Reverse Recovery Charge (3)	Q_{rr}		21	29	nC	

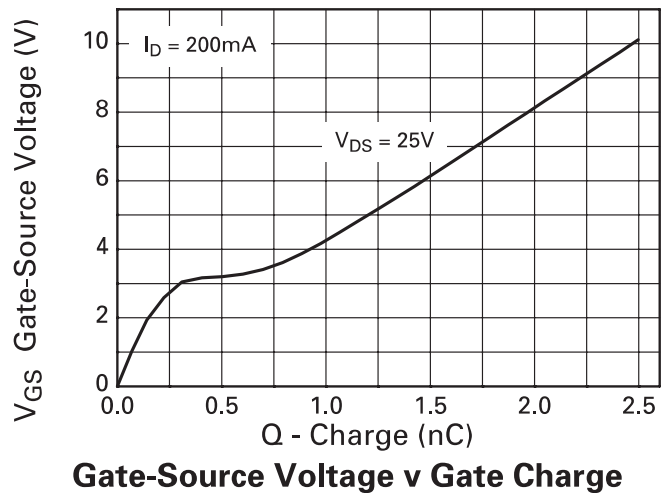
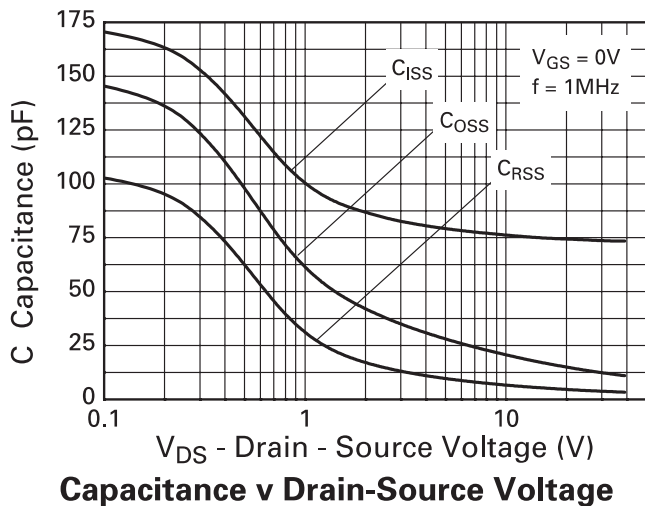
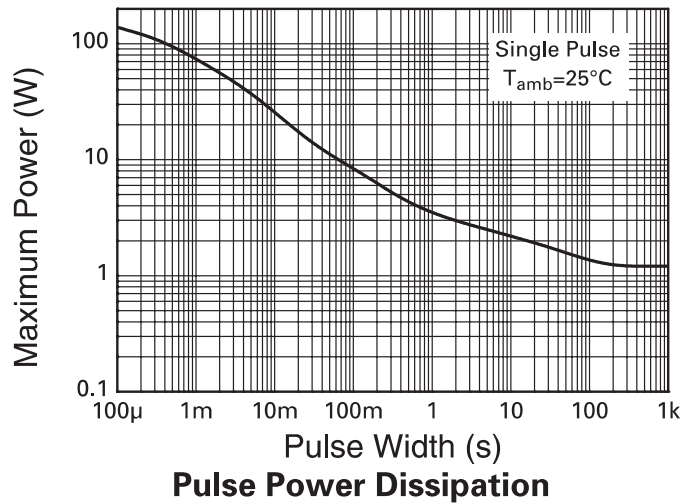
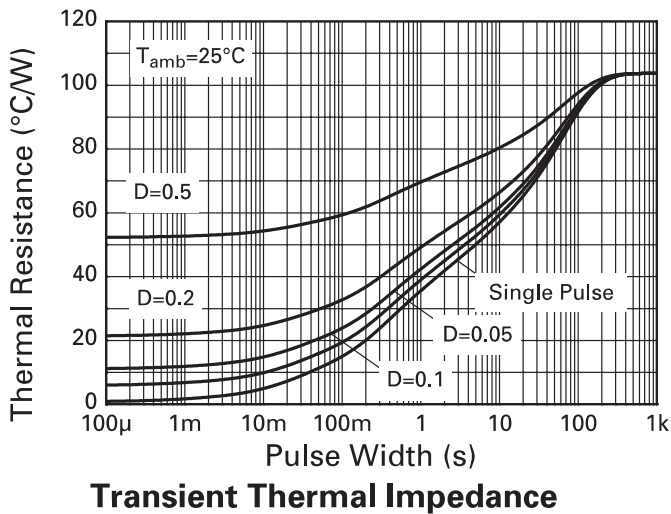
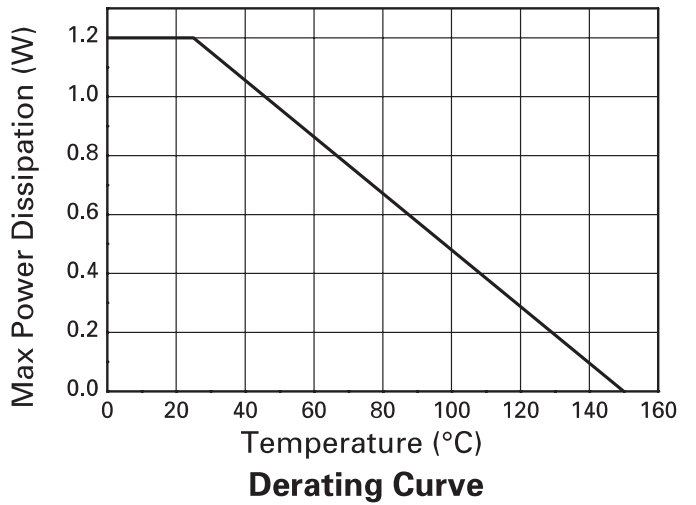
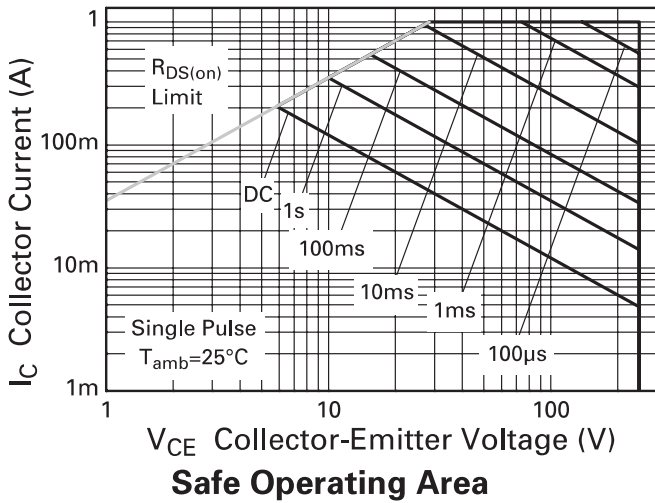
Note: (1) Measured under pulsed conditions. Width=300 μs . Duty cycle $\leq 2\%$.

(2) Switching characteristics are independent of operating junction temperature.

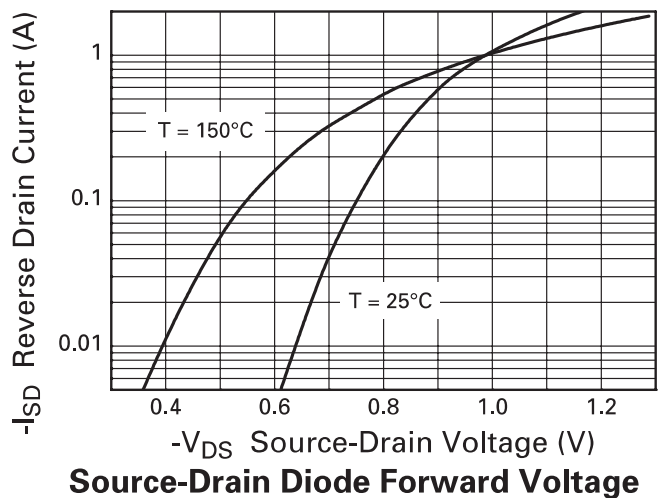
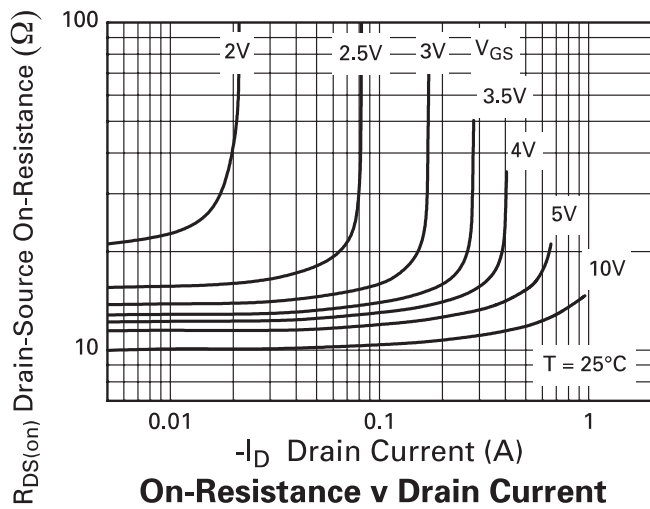
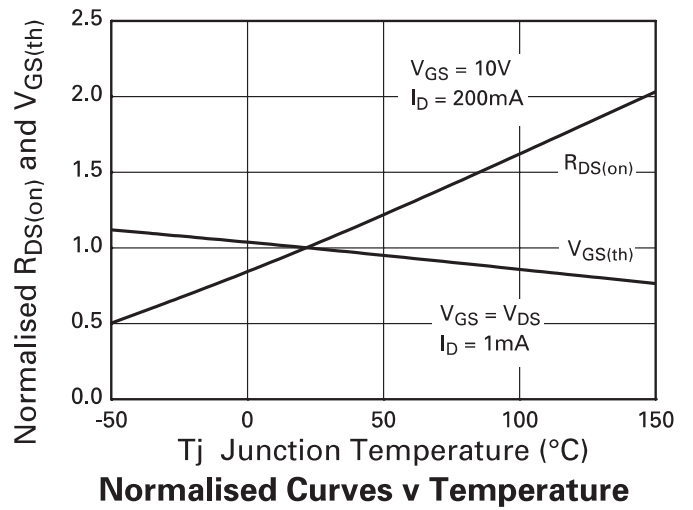
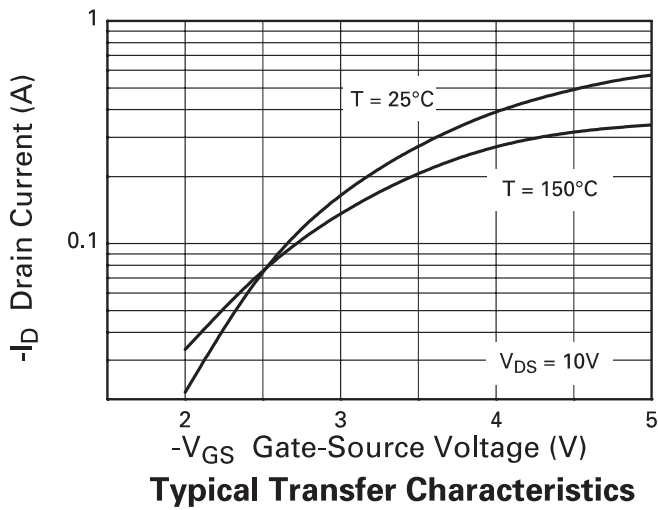
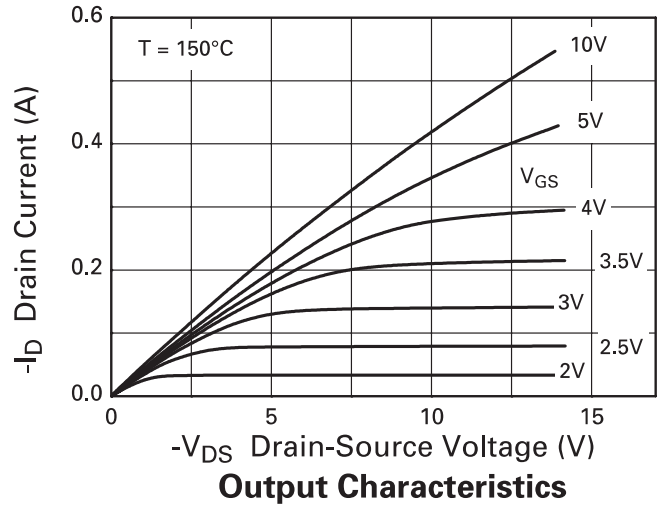
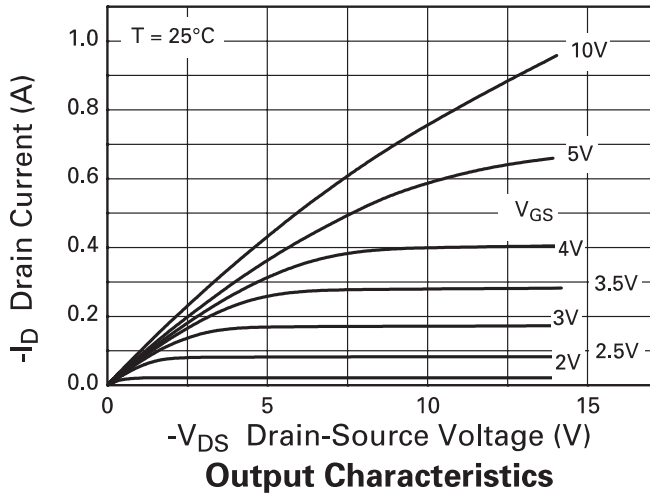
(3) For design aid only, not subject to production testing.

HIGH VOLTAGE MOSFET (P-CHANNEL)

Typical Characteristics

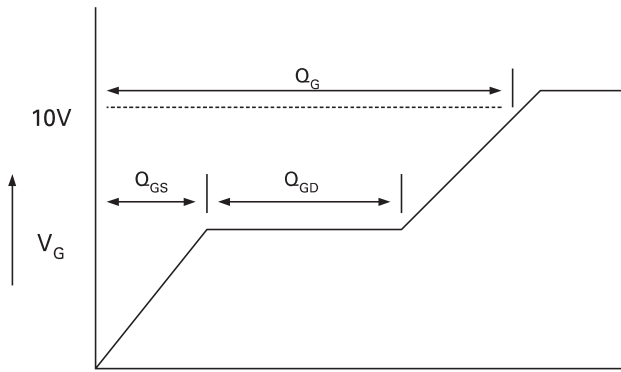


HIGH VOLTAGE MOSFET (P-CHANNEL)

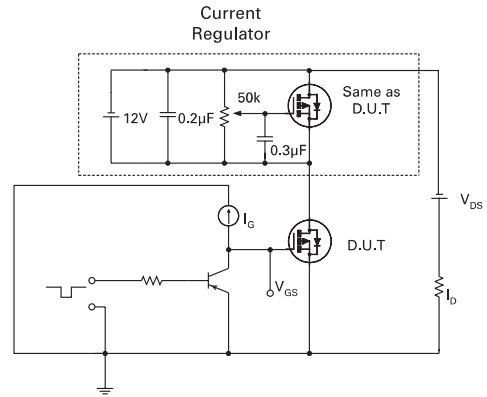


HIGH VOLTAGE MOSFET (P-CHANNEL)

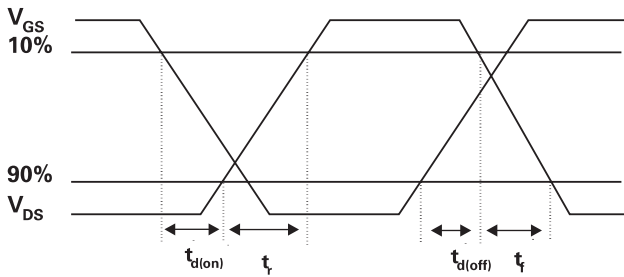
Test Circuits



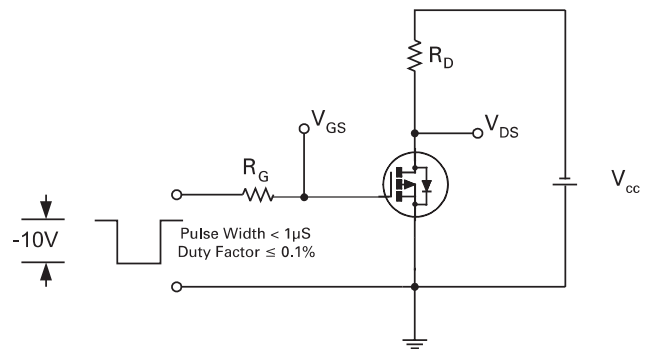
Basic Gate Charge Waveform



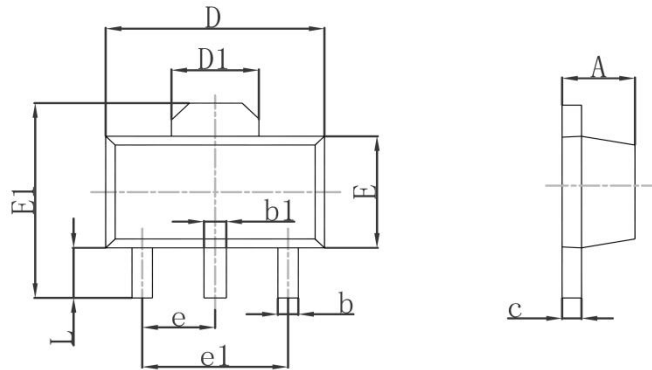
Gate Charge Test Circuit



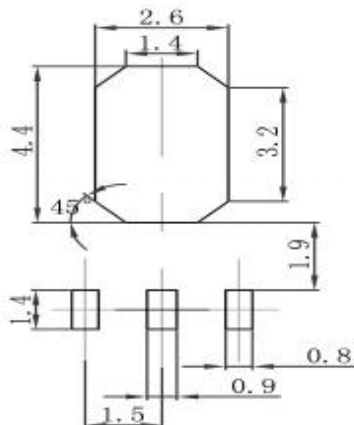
Switching Time Waveforms



Switching Time Test Circuit

HIGH VOLTAGE MOSFET (P-CHANNEL)
SOT-89 Package Outline Dimensions


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.400	1.600	0.055	0.063
b	0.320	0.520	0.013	0.020
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550REF		0.061REF	
E	2.300	2.600	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500TYP		0.060TYP	
e1	3.000TYP		0.118TYP	
L	0.900	1.200	0.035	0.047

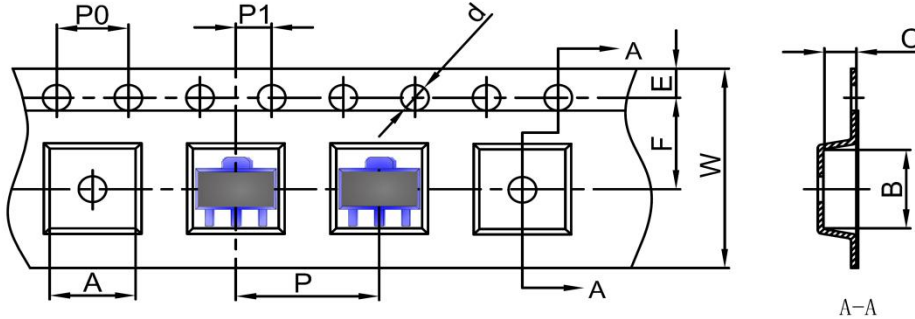
SOT-89 Suggested Pad Layout

Note:

1. Controlling dimension: in millimeters
2. General tolerance: $\pm 0.05\text{mm}$
3. The pad layout is for reference purposes only

HIGH VOLTAGE MOSFET (P-CHANNEL)

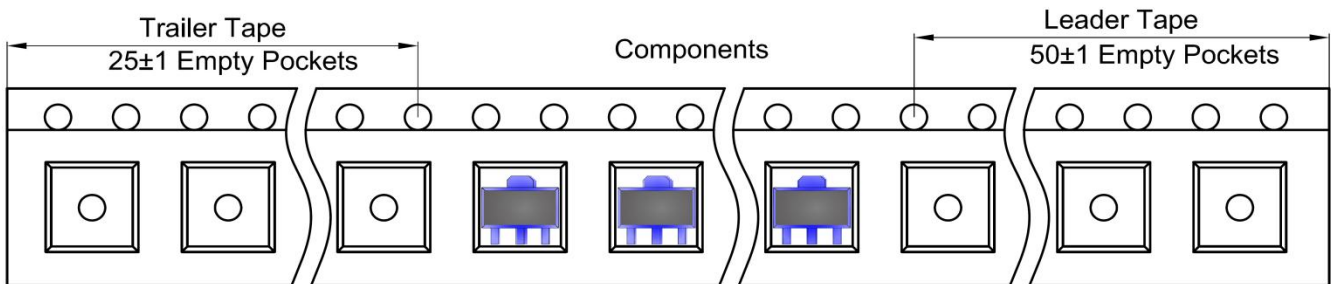
SOT-89 Tape and Reel

SOT-89 Embossed Carrier Tape

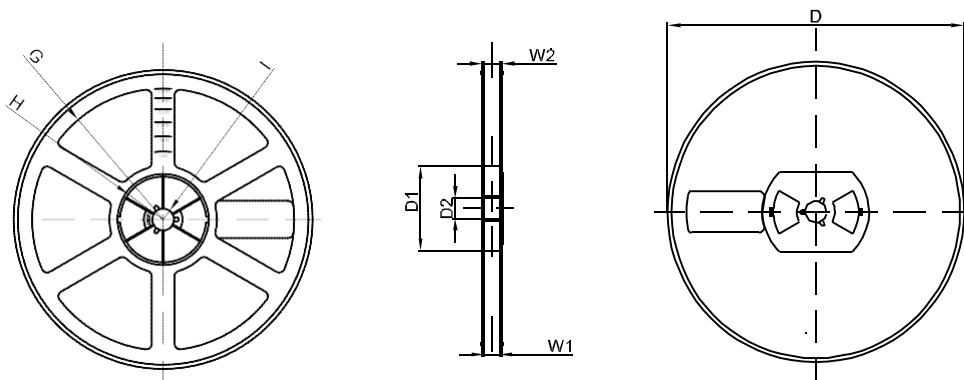


DIMENSIONS ARE IN MILLIMETER										
TYPE	A	B	C	d	E	F	P0	P	P1	W
SOT-89	4.85	4.45	1.85	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

SOT-89 Tape Leader and Trailer



SOT-89 Reel



DIMENSIONS ARE IN MILLIMETER								
REEL OPTION	D	D1	D2	G	H	I	W1	W2
7" DIA	Ø178	54.40	13.00	R78	R25.60	R6.50	13.20	16.50
TOLERANCE	±2	±1	±1	±1	±1	±1	±1	±1